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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,245	08/01/2003	Randy D. Cortright	09820.284	3309
25005	7590	06/21/2004		
DEWITT ROSS & STEVENS S.C. 8000 EXCELSIOR DR SUITE 401 MADISON, WI 53717-1914				
			EXAMINER LANGEL, WAYNE A	
			ART UNIT 1754	PAPER NUMBER

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED:

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on 5-4-04 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s),        days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.                 | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 1-14, 17-24 and 45-49 are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1-14, 17-24 and 45-49 are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --  
(e) The invention was described in (1) an application for patent, published under Section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14, 17-24 and 45-49 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reichman et al. (newly cited). Reichman et al. disclose a method for producing hydrogen by

reacting water and a water-soluble oxygenated hydrocarbon having at least 2 carbon atoms, such as ethanol, aldehydes, ketones and ethers, in the presence of a platinum catalyst. (See column 2, lines 36-57, column 3, lines 48-62, column 4, lines 33-42, and column 12, line 9 - column 13, line 14.) Regarding claims 45-49, Reichman et al. disclose reaction temperatures of 115 to 120°C in Experiment 5.

Claims 1-14, 17-24 and 45-49 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lomax, Jr. et al. (newly cited). Lomax et al. disclose a method for producing hydrogen comprising reacting water and alcohols in the presence of a Group VIII noble metal catalyst. (See column 1, lines 12-24 and the paragraph bridging columns 15 and 16.) Lomax et al. contemplates the use of alcohols having at least 2 carbon atoms, since the reference discloses at column 1, lines 15 and 30 that the hydrocarbon fuel can be selected from "alcohols", and any alcohol other than methanol would inherently contain at least 2 carbon atoms. In any event, it would be prima facie obvious to employ ethanol as the hydrocarbon fuel in the process of Lomax et al., or other fuels such as glycerol, since Lomax et al. suggest at column 1, lines 15 and 30 that any alcohol may be employed, as well as other hydrocarbon fuels. Regarding claims 2, 3 and 45-49, Lomax

et al. disclose at column 15, lines 66 and 67 that the exit temperature from the reactor is preferably between 500°C and 900°C, implying that the reaction temperature would be less than 500°C.

Claims 1-14, 17-24 and 45-49 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lomax, Jr. et al. in view of Reichman et al. Lomax et al. is relied upon as discussed hereinbefore. The difference between the process disclosed by Lomax et al., and that recited in applicant's claims, is that Lomax et al. do not specifically disclose that the hydrocarbon fuel should be a water-soluble oxygenated hydrocarbon having at least 2 carbon atoms. Reichman et al. disclose representative hydrogen producing steam reformation reactions for a general alcohol at column 2, lines 36-57.) It is clear from such passage in Reichman et al. that oxygenated hydrocarbons having at least 2 carbon atoms could be reacted with water to produce hydrogen. It would be prima facie obvious from such passage in Reichman et al. to employ a water-soluble oxygenated hydrocarbon having at least 2 carbon atoms as the hydrocarbon fuel in the process of Lomax et al., since the process of Lomax et al. is directed broadly to the use of any hydrocarbon fuel, and Reichman et al. establish the equivalence between methanol and higher alcohols, and even other oxygenated hydrocarbons such as aldehydes, ketones and ethers, as

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a fuel source for reacting with water to produce hydrogen.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or public PAIR. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WAL:cdc

June 17, 2004

*Wayne A. Langel*  
WAYNE A. LANGEL  
PRIMARY EXAMINER